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There was read a paper "On the approximate places and descriptions of 295 new double and triple stars, discovered in the course of a series of observations with a 20-feet reflecting telescope; together with some observations of double stars previously known." By the President. The author prefixes a few remarks to this catalogue of stars, in which he first explains why the places of the stars which it contains are probably materially more exact than those of his former catalogue, especially in right ascension. He then records some results of his observations, either in themselves considered, or in comparison of preceding observations of Mr. South, and some other astronomers. Thus, the curious double star, R 17^h 52^m $1^s,5$, so remarkably situated in the midst of a very large and conspicuous nebula, affords a striking instance how easily the latter class of objects may be overlooked in the usual mode of conducting astronomical observations. Mr. South measured this star in the 5-feet equatorial, but the nebula, which forms so interesting an appendage to it, entirely escaped his notice. The observations of ξ *Ursæ Majoris* supply a satisfactory confirmation of its motion, in conjunction with those of Mr. South in the spring of 1825, its angular motion being found to be about 7° per annum. Since Mr. Herschel's first observation of this star, in conjunction with Mr. South in 1823, it has described nearly a twelfth of its revolution. This star, therefore, is earnestly recommended to astronomers, as frequent and careful observations upon it can scarcely fail to develope the law of gravitation in that remote system. Both the stars in α *Capricorni* are double: and that usually designated as α^2, Mr. H. characterises as one of the most beautiful and delicate objects in the heavens. The introductory remarks terminate with an account of a curious meteorological phenomenon, which occurred on the 19th of April last. The paper concludes with a catalogue of new double stars, arranged in the manner of the author's former catalogue.

There was next read a paper from Mr. Curnin, the Superintendent of the Observatory at Bombay, communicating a regular series of observations of moon-culminating stars, on the several previously arranged days, for the lunations in the months of February, March, April, May, and a few detached observations on similar stars in August and September, in the year 1825. These observations were made with a transit instrument of only two feet focal length, and little more than two inches aperture, placed in a temporary observatory. The deviation of this instrument from the meridian, in the

early part of the observations, was nearly one minute in time; but it is not mentioned whether the deviation was easterly or westerly: and Mr. Curnin remarks, that the error of its position on each day is stated "till the smallness of the deduced deviation and the opposite direction of it, were thought to be the effect of the errors of observation; and within narrower limits I have not yet attempted to bring the instrument, as I have not a catalogue on which I could rely for the mean place of stars that are well adapted for the purpose, nor a time-piece of sufficient regularity to justify my dependence on it, nor a meridian mark to guide me in the execution of it." It cannot be expected, therefore, that observations made under such unfavourable circumstances can throw much light on the practical solution of that difficult problem, the determination of the longitude, where the greatest accuracy is necessary. It is understood, however, that a new set of instruments has lately been forwarded to the Observatory at Bombay, at the expense of the East India Company; and the public therefore may soon expect to reap the benefit of so laudable an exertion of patronage and public spirit.

This was followed by the reading of a paper by Professor Littrow, director of the Imperial Observatory at Vienna, "On the determination of azimuths by observations of the pole-star." The principal object of this communication is to shew that the observations of the pole-star, not merely at the times of its greatest elongation, but at any points in its dirunal revolution, may be advantageously employed in the determination of azimuths. After Mr. Littrow has explained his process of observation, he investigates the theorems requisite in the computation. Let t be the mean of the times of observation, T the corresponding sidereal time, the horary angle of the pole-star $s = \mathrm{T} -$ apparent $\mathcal{R}$, p be the apparent polar distance, φ the elevation of the pole, A the arithmetical mean of the azimuths of the star read off the instrument, while O is the mean of the corresponding azimuths of the terrestrial object chosen. Then the theorem for the azimuth ω of the star, at the time of the middle of the observations, is

$$\omega = \frac{p \sin s}{\cos \varphi} + \partial\,\omega + \mathrm{M}\,\partial^2\,\omega$$

and the azimuth of the terrestrial object is $\alpha = \omega \pm (\mathrm{A} - \mathrm{O})$.

The determination of the values of $\partial\,\omega$ and $\partial^2\,\omega$, which depend partly upon series, is explained in the paper, as well as the mode of determining them by a small subsidiary table, easily computed. The application of the method is then shewn by some examples from observations in July last year, in which two distinct results of observations with the face of the circle towards the east and towards the west, agree within half a second.

A communication from G. Dollond, Esq. was then read, giving an account of a singular appearance observed during the solar eclipse on the 29th of November last. The morning was cloudy, but soon after the commencement of the eclipse there was a partial opening in the clouds, through which Mr. D. saw *a considerable*

part of the limb of the moon which had not yet entered on the disc of the sun. Continuing his observations, after a short time, as the clouds passed on, he again saw both the sun and a portion of the moon's border *which was off the sun's disc.* The sky then became cloudless, and he could no longer discern any part of the moon's limb, except that which eclipsed the sun. This unexpected occurrence Mr. D. thinks may be turned to advantage, as it seems to shew that the reduction of the sun's light, by the intervention of an opaque substance, may enable an observer to see the moon when she is very near the sun.

There was next read, A letter from Mr. Reeves of Canton, giving an account of a comet seen at sea, Oct. 3d, 4th, 5th, 10th, and 30th, 1825. When it was first observed, the ship was in lat. 7° 20′ N. long. 110° 20′ E., the comet was in a line between η *Eridani* and π *Ceti*, about one-third of the distance from the former star. It then passed π *Ceti*, advanced toward σ *Ceti;* and at length, on the 30th of October, was seen so near to α in the western wing of the Crane, that that star appeared to form the nucleus of the comet. Shortly afterwards the comet entirely disappeared.

Lastly; A letter was read from M. Gambart to the President, containing new elements of the comet which passed across the sun's disc in Nov. 1826, with a more precise determination of the moment of its leaving the disc; from which he concludes that both himself and M. Flaugergues of Viviers must have observed the sun before the comet left it. As, however, neither of them saw the comet, the conclusion drawn is, that it was too small or too rare to be visible in that situation.

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